

Blue Max

.....
ACES OF THE GREAT WAR
.....

FLIGHT MANUAL



Introduction



There has always been an unspoken respect that the sky pilots held for one another, friend or foe. The real force that took our heroes to the sky was not of destruction or conquering the enemy, it was to conquer the air. History shows man's fascination with the machine. We study it, paint it, fix it and often worship it. We take it to the limit, sometimes to the extent of self-destruction. The planes of the Great War were more like an extension of the pilot. There was no automation to be taken for granted. No parachutes or bullet proof plasti-glass. Planes were of cloth and plywood and seldom adequately stress tested before use. The extent of the machines capabilities were often discovered at a most inconvenient time.

Prior to the war, planes were not thought of as weapons. Thought was reserved to keeping the newly discovered shapes airborne. The principle of flight only became undesirable when it allowed the enemy to follow your moves on the ground. Shooting at a plane from the ground was easy, but scoring a hit was not. So you took to the skies in pursuit and realized having a six shooter and opposing thumbs was not enough to accomplish the task. Frustration caused pilots to conclude their flights by ramming the adversaries' plane with their own. Grappling hooks were also employed. But not until the existing technology of firearms be





came an integral part of the airplane, was an efficient means of downing the enemy achieved.

Man against man and man against machine. Though our aces have turned to ghosts, and planes to space shuttles, this period lives on as one of the most romantic aspects of history. The courage and skill of these pilots often returns in conversation, song, and computer games...





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Contents

Equipment & Installation	1
Equipment Requirements	1
Hard Disk Drive Installation	2
Creating Backups	2
Operations	3
Making Selections	3
Quick Start	4
THE MAIN MENU	4
Practice Flight	5
Set Computer Options	5
Graphics	6
Plane Detail	6
World Detail	7
VCR	7
Sound	7
Registration	7
Number of Players	8
New Player	8
Active Pilot	9





Flight Control Device	9
Type of Simulator	9
Crosshair or Bullets	10
Select Game Mode	10
One-Player Games	10
Two-Player Games	11
Select Aircraft	12
Set Weather Conditions	12
Begin Flight	12
View Pilot List	13
Exit to DOS	13
CONTROLS & MANEUVERS	13
Controls	13
Control Panel View <f9>	17
Landing	18
THE GAMES	19
One-Player Action Dogfight	19
One-Player Campaigns	20
Campaign Maps	21
Missions	24
Victory	24





Two-Player Games	25
The Two Player Action Screen	25
The Two Player Controls	26
Two-Player Dogfights	28
Two-Player Campaigns	28
Strategy Game	29
One-Player Strategy Game	29
Two-Player Strategy Game	29
Time Limits	30
Strategy Game Screen	31
Move Selection	31
The Move	36
The VCR	36
The Pilots	42
The Planes	74
Highlights	83





Blue Max

Notes





Equipment & Installation

Equipment Requirements

Because all computers are configured differently, Blue Max has been designed to take advantage of many different hardware configurations. Blue Max supports:

- IBM XT's, AT's, 286's, and 386's
- Keyboard, mouse and joysticks
- 1 or 2, 5 1/4 inch drives, hard drives (requires a mail-in for the 3 1/2 inch drives)
- Herc, CGA, EGA, Tandy, VGA graphics cards
- AdLib and Sound Blaster sound cards.

Minimum configuration

- IBM PC or compatible with minimum 512K of memory
- Keyboard
- Disk drive
- Graphics card

When you start Blue Max, it examines your computer and automatically adjusts several options according to the hardware you have installed. You may want to experiment with these options as you learn to play the game. For example, if the game is running slowly on your computer you will be able to improve the situation by changing some of the computer options. (please see "Set Computer Options" in the **Operations** section)



Blue Max

NOTE: If you think your computer has at least 512K of memory and the game won't start, it may be that you have filled up memory. To check, try the following procedure:

- a) start your computer
- b) put Blue Max Disk 1 into drive A
- c) type a: checkup

This program will tell you how much memory your computer has. If it says you have more than 512K of memory, but less than 485K (VGA) and 385K (EGA), you must remove any memory-resident programs. (If you don't know how to do this, contact your dealer or your friendly local PC know-it-all).

Hard Disk Drive Installation

To install Blue Max on your hard drive:

- a) boot up
- b) create a directory (use the DOS md command; be sure that there is room in the directory for at least 1.8 megabytes)
- c) place Blue Max Disk 1 into drive a:
- d) type a: install
- e) follow the prompts that appear on your screen

Creating Backups

Always make backup copies of your master disks, and store the masters in a safe place. Follow one of these procedures:

- Copy each of the Blue Max disks to another set of





disks, (use the DOS copy command.) and use the copies to play the game.

- Install Blue Max on your hard drive, and store the originals as your backup.

Operations

MAKING SELECTIONS

You can use the keyboard, a mouse, a joystick, or any combination of the above, to make selections from the menu:

Keyboard

- a) the up/down *arrow* keys highlight different options.
- b) the <RETURN> or <ENTER> key makes the selection

Joystick

- a) moving the joystick forward and back highlights different options.
- b) the firing button makes the selection.

Mouse

- a) Point with the mouse arrow at the option you want to select.
- b) press the left button to make the selection

QUICK START

The following steps will put directly behind the controls

of a Sopwith Camel, in one of Blue Max's Practice Action Dogfights.

- 1) Turn on computer.
- 2) Insert Blue Max Disk 1 into disk drive, or enter the BLUE MAX directory on your hard drive.
- 3) Type BLUEMAX
- 4) After the opening animation, follow the prompts for calibrating your joystick, if you are using one.
- 5) When main menu appears, select Begin Game.
- 6) Fly 'til you die, then come back and read the next section.

THE MAIN MENU

BLUE MAX
REGISTRATION
SELECT GAME MODE
SELECT AIRCRAFT
SET WEATHER CONDITIONS
BEGIN FLIGHT
SET COMPUTER OPTIONS
ABOUT BLUE MAX
VIEW PILOT LIST
EXIT TO DOS

For a thorough introduction to Blue Max, follow steps 1 through 4 of the **Quick Start** above, and then begin working



through the options of the Main Menu, as described below.

The Main Menu appears after the opening animation and calibration of the joystick are finished.

NOTE: Touch the <ESC> key during the opening animation or calibration of the joystick to go directly to the main menu.

Practice Flight

If you want to warm up before starting a campaign or taking on a few enemy fighters, choose "Begin Flight" immediately after starting up Blue Max and accept the default configuration of the game. Basically, you will be a nameless pilot flying a Sopwith Camel for the Allies in a practice action dogfight. Enemy planes will not shoot at you and score is not kept. This is your chance to get in some target practice and barrel rolls before risking your name, honor, and score in a real dogfight or campaign.

Set Computer Options

Before registering as a pilot or configuring your fighter, you should "set computer options" to take maximum advantage of your computer's abilities. Using one of the selection methods outlined above, move down the Main Menu and choose "Set Computer Options."

The options available depend on the configuration of your computer. If an option is not highlighted, your machine is not configured to take advantage of it..

- TIP: If Blue Max's features seem limited in any way during operation, the culprit is nearly always a lack of sufficient memory. By using the various options in the

"Set Computer Options" menu to sacrifice some degree of graphic detail, sound generation, or use of the VCR feature, you can limit the game's appetite for memory, making it run more efficiently and therefore faster. Eliminating any memory-resident programs you may be used to using will also free up memory and speed the game up.

Graphics

Choose the graphics option that corresponds to your installed graphics card.

- **TIP:** VGA is the clearest graphics mode, but is also the largest and most memory-hungry. You can also choose EGA with a VGA card installed, sacrificing graphic quality for faster operation.

Plane Detail

Interiors: Turn on the "interiors" option to see your plane's cockpit and guns as you fly. Turn "interiors" off if you want to conserve memory or increase the program speed.

Exteriors: "Exteriors" sets the level of graphic detail for the exterior of any plane that appears on your screen. The lower the resolution you set, the faster the game runs.

Animations: These are the high-resolution explosions and machine gun animations in the game. Turning "Animations" off limits these particular graphics, con-





serving memory and increasing game speed.

World Detail

Setting the “World Detail” level to low eliminates some features, such as roadways, from the landscape in Blue Max’s world. This helps conserve memory, but makes it harder to locate landmarks during missions.

VCR

You must set this option to “on” before beginning any flight if you want to replay the flight using the VCR function. Keep in mind that the VCR uses memory to store the record of your flight, and the length of segment you can record depends on your computer’s available memory. Also, The VCR slows the game down slightly.

Sound

You can turn the sound completely off if you wish, but keep in mind that some of the sounds in the game are there as a warning feature. Instead, you can choose to turn only the engine sound off.

Registration

Unless you want only to fly an anonymous single-player practice flight, as described briefly below in “Select Game Mode,” you need to register as a Blue Max pilot. After you’ve set your computer options, select “Registration” from the top of the Main Menu.

Number of Players

The type of game options available to you depend on



whether you register in the One- or Two- Player mode.

In Two-Player mode, two players are in action at the same time, using different sets of keys on the same keyboard, or with one using a joystick or mouse while the other uses the keyboard (The program will not allow more than one mouse or joystick to be used during a game). If two players wish to take turns flying against the computer, they must re-register in the One-Player mode between turns.

TIP: Before you and another player attempt a Two-Player game, each of you should spend some time and ammunition in the One-Player mode.

New Player

Select "New Player" if you are playing for the first time, or if you would like to register under a new name.

You will be asked to type in a name. This name is added to Blue Max's list of *Active* pilots. The pilot will remain on the active list until he/she crashes or is shot down.

You will also be asked if you want to be an Axis or and Allied pilot. This will determine not only the types of airplanes you can choose from, but also the missions that will be assigned to you in Blue Max's campaigns. You may want to register under different names on both sides. These different "personas" can allow you to work both sides of the fence, depending on your current frame of mind.

Active Pilot

If you have already registered, select "Active Pilot" and





locate the name you want to use on the Active list.

Flight Control Device

After you have registered under an active name, you will be asked to specify the type of control device you plan to use.

NOTE: the Joystick and Mouse controller options are available only to one player at a time. That is, if one player chooses either the mouse or joystick, the other will not have that controller option.

If you and a friend are preparing for a Two-Player game, Player One can choose either mouse or joystick, or the set of control keys on the **left** hand side of the keyboard. If Player One has not chosen either the mouse or joystick, Player Two can select the mouse or joystick, or the set of control keys on the **right** side of the keyboard.

TIP: If you plan on using the keyboard to play a two-player game with a friend at a later time, spend some time in the one-player mode practicing with both the right- and left-hand sets of control keys.

NOTE: IBM keyboards only read THE LAST KEY TYPED. This means that when two players play on one keyboard, they should tap the keys. If you hold down a key and the other player touches a key, yours is in effect turned off.

Type of Simulator

You can choose between two different flight simulators in Blue Max:

- *Direct flight* is the easiest to fly. The plane flies in the direction you point.

- *Realistic* simulator is more realistic and a bit more difficult. If you pick *Realistic*, you will find that each of the eight planes is different from the others.

Crosshair or Bullets

If you choose *Bullets*, the action of aiming and firing at an enemy plane is more difficult to control, but more realistic. You have to “lead” your target, judging distance and speed before firing.

If you choose *Crosshair*, your bullets always go exactly where the crosshairs of your machine gun are pointed.

Select Game Mode

Different game modes are available depending on whether you registered for a one- or two-player game.

One-Player Games

- *Practice Flight*: A one-player practice flight is the best place to start learning Blue Max. Enemy planes will not shoot at you and score is not kept.
- *Action Dogfight*: The same as a practice flight, except now the enemy is shooting back, and score is kept. If your score is high enough, it will be recorded in the “Pilot List” records.
- *Practice Strategy*: This option gives a single player the chance to practice with the controls used in a two-player strategy game.
- *Campaigns*: If you pick one of Blue Max’s three *Campaigns*, you will be given a mission to accomplish. If you succeed, you will be assigned another mission, and



so on until the entire campaign has been successfully completed.

See the section below on “Campaigns” for more information

Two-Player Games

- *Cooperative Dogfight*: You and another player fly and fight together as a team against the enemy. This option is available only if both of you have registered as either Axis or Allied pilots.
- *Action Dogfight*: You and another player go after each other in the skies of France. This option is available only if one of you has registered as Allied, and the other as Axis.
- *Strategy*: You and your fellow player engage in a “stop-action” dogfight against each other that emphasizes strategy instead of hands-on flying skill. In a strategy game, you and your opponent are NOT flying your airplanes directly. Instead, you plan the moves you will make on a hexagonal grid, and then have the computer execute the maneuvers you’ve specified.

See the section below on “Strategy Dogfighting” for a complete description.

- *Campaigns*: The same as “One-Player Campaigns” above, except that you and another player undertake the missions of a campaign together, or as opponents.

See the section below on “Campaigns” for more information



Blue Max

Select Aircraft

There are eight different WWI fighters to choose from in Blue Max: four Allied planes and four Axis planes.

Depending on which side you registered with, you can choose one of four planes to fly. Each plane appears on its own screen with some specifications about its performance capabilities. You can choose either to view the next plane, or select the currently displayed plane.

Set Weather Conditions

You have control over two elements of the weather:

Wind will affect the performance of your aircraft.

Clouds can be used as part of your strategy when dog-fighting.

NOTE: Selecting clouds requires more memory and may slow performance down.

Begin Flight

When you select Begin Flight the game will start, and all of the options you have selected will be in force. Before you select *Begin Flight*, you can go back and change any of the choices you have made.

Once you finish a game, your choices remain in effect until you either change them or restart Blue Max.

NOTE: If your pilot is killed on a mission in one of the campaigns, you will have to re-register before *Begin Flight* will work again. If your pilot is killed in any other game mode, you can *Begin Flight* again, but your pilot will be nameless.



View Pilot List

Choose *View Pilot List* to review the status and scores of the 10 best pilots. A pilot's score equals the number of times you have shot down an enemy plane *and* landed safely (landing is described below in "Controls & Maneuvers"). Remember that score is not kept in practice mode.

Exit to DOS

Make this selection to leave Blue Max and return control of your computer to your computer's operating system.

CONTROLS & MANEUVERS

Controls

To learn how to control your fighter:

- 1) Register as a new pilot and choose "Direct Control" when asked which simulator you want to use.
- 2) Choose "Practice Flight" from the "Select Game Mode" menu
- 3) Choose "Select Aircraft" and decide which plane you want to fly
- 4) Choose "*Begin Flight*" (*We'll keep the weather clear and windless for the time being*)

In practice mode, you will find yourself in a plane in the air flying somewhere over France. For the moment, leave well enough alone. The plane will fly straight and level on its own (it would have gone nose down and crashed if you had chosen the the "realistic" simulator when registering).



Blue Max

There is an enemy out there, but remember that he can't shoot you down in a practice game. You can, however, shoot him down. If you do manage to nail him, another enemy plane will soon appear.

You are in the cockpit of the plane you selected. Look out the left or right and back, or just turn your head left, right, up or down, by using the keys and/or controllers listed below. Moreover, you have complete control of the airplane through these keys and controllers. Take the time to practice using them:

Joystick

joystick leftturn left
joystick rightturn right
joystick backclimb
joystick forward ...dive
joystick centercenter the control stick
Firebuttonfire machine guns

Mouse

mouse leftturn left
mouse rightturn right
mouse backclimb
mouse forwarddive
left mouse button .fire machine guns

Common Keys (work no matter what you chose as a controller)

scroll lockdisable/enable plane interiors, if "on" in
Set Computer Options (<HOLD> key on





Tandy keyboards)

F9toggle large/small view on and off
 F10pause/unpause
 Escreturn to main menu
 Vturn on the VCR

Left Keys

Aturn left
 Dturn right
 Xclimb
 Wdive
 Scenter the control stick
 5/%accelerate
 6/^decelerate
 Tab/Space barfire machine guns
 F1front view
 F2left view
 F3right view
 F4rear view
 F5toggle chase plane view on and off
 1look left
 2look right
 3look up
 4look down

Right Keys (on the key pad)

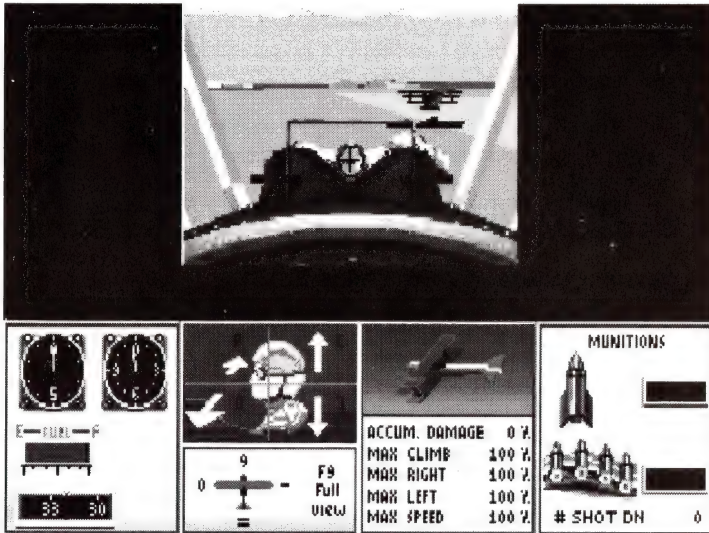
4turn left
 6turn right
 2climb
 8dive
 5center the control stick
 =/+accelerate



_/-decelerate
Enter/returnfire your gun
Backspacetoggle chase plane view on and off
9front view
0left view
-right view
=rear view
olook left
plook right
[.....look up
]look down

Control Panel View <r9>

Press <F9> to see the Control Panel of your airplane.



The control panel has a reduced view identical to the one you started with (you can return to the larger view, minus the control panel, by pressing <F9> again).

There are four boxes in the control panel:

- In the box at the far left are an altimeter (upper left



corner) and airspeed indicator (upper right corner). In the center is a fuel gauge, and at the bottom is a compass

- The next box to the right is a quick reference for key-strokes that rotate your pilot view.
- The third box lists any damage you have sustained (you won't sustain damage in practice mode).
- The last box lists your munitions supply and the number of enemy planes you've shot down.

Landing (Ending A Practice Session)

There are only three ways to end a practice session:

- Crash the plane (ouch!). You can crash by flying too low, running out of fuel, or running into another plane.
- Press <ESC> and answer yes when asked if you really want to quit.
- Land the plane. To do this:
 - a) fly low
 - b) Slow the airplane down, to below 50 (see the list above for the throttle keys). Be careful! If you fly too slowly you will stall and crash. Your altitude should approach 0, but keep the nose up slightly as you come down. If you land properly, you will see a "congratulations" message. If you crash, you'll see the smoking heap of wreckage that was your fighter, and then you'll be returned to the main menu.



THE GAMES

One-Player Action Dogfight

The One-Player *Action Dogfight* is similar to the *Practice Flight*. There are three main differences:

- You select the number of enemy planes you want to fight simultaneously.
- The enemy planes shoot back.
- Score is kept.

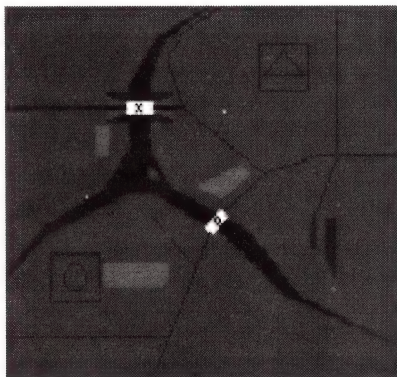
If you want to become an ace, keep these things in mind:

- 1) Your score equals the number of enemy planes you manage to shoot down without being shot down yourself.
- 2) For your score to count you **MUST** return to your territory and land the plane (see "Landing" above). If you press <ESC> or boot the computer before you land, your score will be forgotten.

To accomplish this, you need to know where your territory is. For this purpose, we have included the following map. Your safe territory depends on whether you are flying an Allied or an Axis plane. The safe areas are marked accordingly, and landmarks on the map correspond to what you will see during your flight.



Blue Max



If you land the plane inside enemy territory, your score will count, BUT you will no longer be a registered pilot.

NOTE: The map is not available during the game. You will have to rely on your memory or refer back to this manual.

- 3) If you are shot down, the name you registered under will no longer be on the active pilot list (unless you register again with the same name as a new pilot). Only the 10 top aces are kept in the Pilots List.

One-Player Campaigns

One-Player *Campaigns* are similar to action dogfights, except that you now have a goal or mission to accomplish, and the computer is the enemy.

When you first select this mode, you will be asked to



select one of three Campaigns. If your pilot isn't killed, you will be returned to the campaign you are currently involved in. The active pilot list will remind you, should you happen to forget.

In order to complete a campaign you must succeed at each of several missions without being killed.

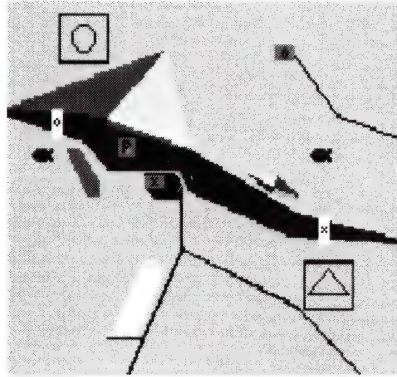
TIP: If you think you are going to be shot down, head for home and try to land. You don't want to land behind enemy lines and be classified "missing in action". If you are, you will be removed from the active pilots list, although if you've done an outstanding job you will retain your high score.

If you fail a mission but manage to land safely, you will be asked to try again.

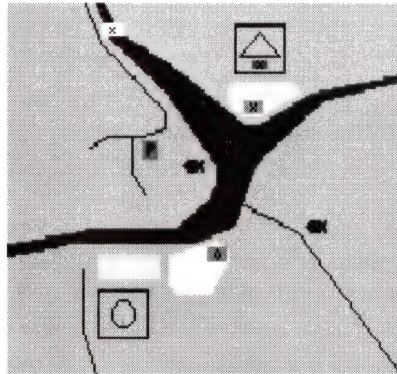
Campaign Maps

The Campaigns take place over three different locations. Items on the map correspond to landmarks you will see during the campaign. Study the appropriate map (next page) carefully before starting your first mission.

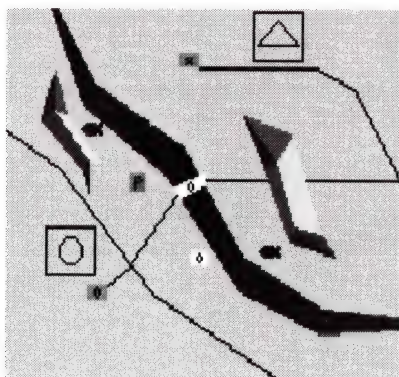
Bloody April








Battle of Amiens



Ludendorff Offensive



The following map legend will help you identify items on the map:

-  allied bridge
-  axis bridge
-  allied factory
-  axis factory
-  allied supply shed
-  allied balloon
-  axis balloon
-  patrol area
-  allied airbase
-  axis airbase

Missions

There are several different types of missions:

- *Patrols*: You must shoot down at least one enemy and land safely.
- *Defensive Missions*: Prevent the enemy from destroying a target (you must shoot them down) and land safely.
- *Bombing Missions*: Destroy the enemy target and then land safely. To bomb a target successfully, go to the control panel screen <F9> and use the look down key (<4> or <J>), and then press . You will see the bomb fall, and if you score a hit the target will disappear from the screen.
- *Photo Reconnaissance*: Photograph an enemy target and land safely. To succeed, you must be near the target, and it must be centered in the window. To take the photo, press <C>. You have succeeded if the screen flashes.
- *Balloon Missions*: Destroy the enemy balloon and land safely.

Note that to succeed at any of these missions, you must finish by landing safely. To learn to land in Blue Max, read "Landing" under "Controls & Maneuvers" above.

Victory

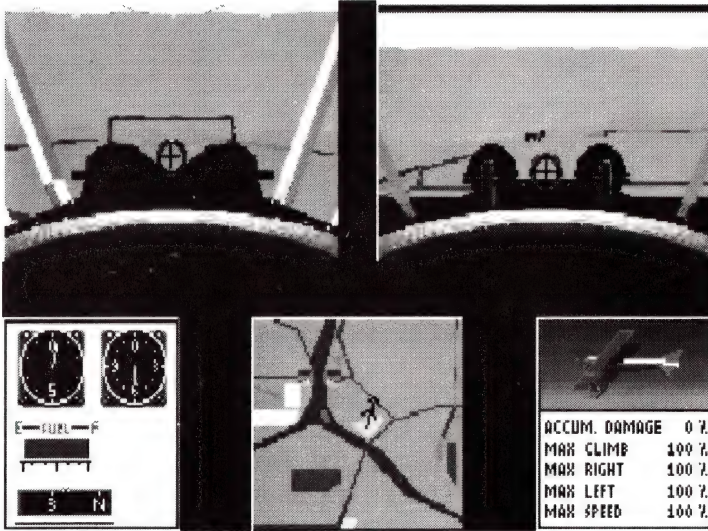
If you complete a campaign you will receive a medal for your accomplishment. If you win three campaigns, you will receive either the Blue Max or the Victoria Cross, depending on your registered allegiance. Your pilot will then be retired. If you shot down enough enemy planes during the campaign, you will be registered on the high score list. I



Two-Player Games

The Two Player Action Screen

When you play any of the Two-Player games (except for the Strategy Game described in the next section) you will see this screen:



Note the following points about the Two-Player screen:

- Player One's view is on the left and Player Two's view is on the right. If you are using the keyboard controls, Player One should probably pick the left keys and Player Two

should pick the right-hand keys. If you want to re-set your choices this, hit <ESC> and re-register.

- A map in the lower center of the screen shows the world view for both players. Player One is identified on the map by the green arrow, and Player Two is the red arrow.

Each player has a separate control panel. The four squares at the top of each panel list keys that lead in turn to the four panels you learned about in "Controls & Maneuvers" above.

The Two Player Controls

NOTE: Remember, IBM keyboards are made in such a way that Blue Max cannot evaluate multiple keystrokes. With two players at the keyboard, you must TAP the keys—not hold them down. If you hold the key down expecting it to repeat its action, there will be no response.

Common Keys (work no matter what you chose as a controller)

scroll lockdisable/enable plane interiors (both windows)
F10pause (any key to unpause)
Escreturns to main menu

Left Keys (Player One's keys, even if using joystick or mouse)

Aturn left
Dturn right
Xclimb
Wdive



S center the control stick
 5 / % accelerate
 6 / ^ decelerate
 Tab/Space bar fire machine guns
 F1 front view
 F2 left view
 F3 right view
 F4 rear view
 1 show damage panel
 2 show look panel
 3 show instrument panel
 4 show munitions panel
 F5 toggle on/off chase camera

Right Keys (Player Two's keys on the key pad, even if using the joystick or mouse)

4 turn left
 6 turn right
 8 climb
 2 dive
 5 center the control stick
 + accelerate
 - decelerate
 Enter/return fire machine guns
 9 front view
 0 left view
 - / _ right view
 = / + rear view
 o show damage panel
 p show look panel
 [..... show instrument panel

]show munitions panel
Backspacetoggle on/off chase camera

Joystick

The joystick flies the plane, and the fire button operates the machine guns. Note that keys must be used for other controls.

Mouse

The mouse flies the plane, and the left button fires the machine gun. Note that keys must be used for other controls.

Two-Player Dogfights

Two players can cooperate in a dogfight against the computer, or can battle with each other. The games work in the same manner as the One-Player Action Dogfight described above, except that the players are registered either on the same side or on opposite sides of the conflict. The Two-Player Action Screen and Right- and Left-hand keys described above are used in both games.

Two-Player Campaigns

There are two types of two-player campaigning games.

- *Cooperative games* require both players to be on the same side.
- *Player vs. Player* games require each player to register with opposing sides..



Operation of a two-player campaign is identical to that of the one-player campaign described, except for the appearance of the two-player split screen, and the keys used.

Strategy Game

One-Player Strategy Game

A Practice Strategy game is available to you as a single player. It is designed to let you practice the Player One or Player Two key set. The other player is replaced by the computer—a real person will put up a tougher fight. See the next section for a complete description of the Strategy game

Two-Player Strategy Game

In strategy mode you are not flying the plane. You are moving it around according to certain rules, as in chess. Your opponent is doing the same thing. The object of the game is to maneuver his plane into your sights and shoot it down.

Aside from the Move Selection keys listed below in “Select Move,” the two players have only two keystrokes in common:

<F10>pause
<ESC>return to main menu

The keys for each player are as follows:

Left Keys (Player One Controls)

F1Examine World
F2Examine Status
F3Select Move



Blue Max

F4 Done Turn
Tab/Space bar Done (in Select Move)

Right Keys (Player Two Controls)

9 Examine World
0 Examine Status
- select Move
= Done Turn (on keypad)

NOTE: Both the joystick and mouse can be used to highlight options on the control panel.

Time Limits

This is a timed game. The players are forced to make decisions within established time boundaries. If you are not finished making a decision, the computer will fly as much of your move as possible.

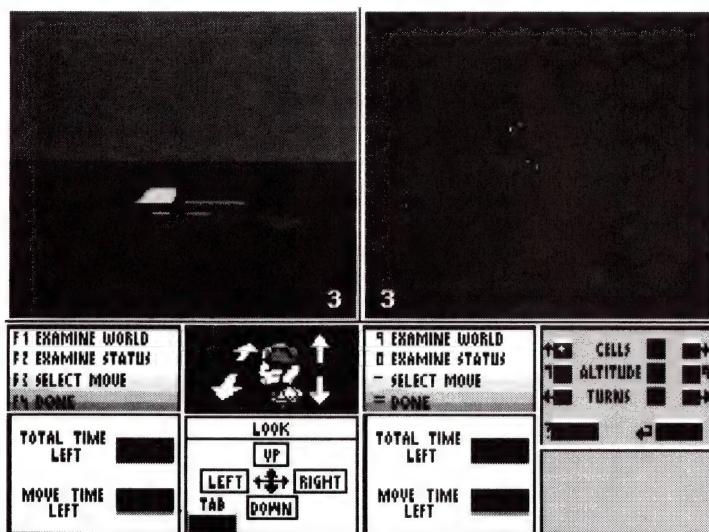
When you select a Strategy game, you are asked to select two time limits:

- *Time per move* limits the amount of time you have to make your move.
- *Time per game* limits the total time the game will run.

Strategy Game Screen



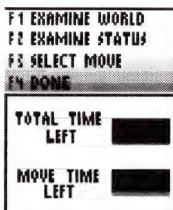
The Strategy game screen is displayed with Player One's information on the left side of the screen. Player Two's information is displayed on the right



Each move has two phases, Move Selection and Move Performance.

Move Selection

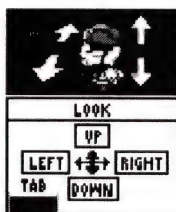
During *Move Selection*, the action is stopped. Both planes are suspended in mid air. Each player is shown a control panel on the bottom of their side of the screen.



The clocks at the bottom of each control panel show the time remaining for the entire game, and for the move in progress. By pressing one of four keys (the keys are listed on each player's control panel), the player whose move it is can do one of four things:

- **Examine World**

When Examine World is selected, a panel appears to the right of the control panel. This panel displays a diagram of the keys the player can use to view different parts of the world around his plane. The initial view is from just behind the plane. The player may turn the camera right, left, up and down. Use this option to get a sense of where your opponent is in relation to you.





Left Keys (Player One Controls in *Examine World*)

W look up
 X look down
 A look left
 D look right
 Tab/Space bar done

Right Keys (Player Two Controls in *Examine World*)

8 look up
 2 look down
 4 look left
 6 look right
 Enter/return Done

- Examine Status**

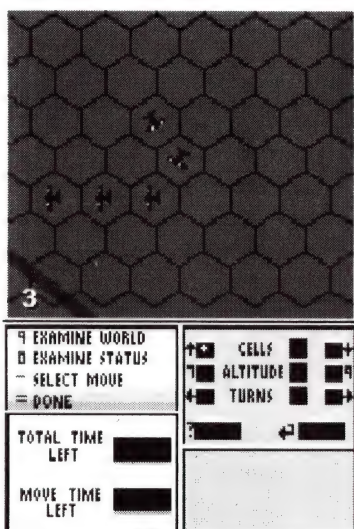
This panel shows you the current status of your plane.

FLIGHT STATUS	
MIN CELLS AVAILABLE	
MAX CELLS AVAILABLE	
MAX CLIMB	
MAX DIVE	
MAX TURN/CELL	
MAX RIGHT	
MAX LEFT	
MAX ALTITUDE	

The status of your plane depends on the plane you are flying (each of the 8 planes is different) and how much damage you have sustained. The status of your plane will limit the moves available to you.

- **Select Move**

The *Select Move* panel is where you set up your move



Each player is allowed to move a certain number of cells forward on the hex grid, and is allowed a certain number of turns within a hex. Each is also allowed to climb or dive a certain number of levels. The number of cells you can move across, and the number of altitude levels you can pass through depends on your plane and the amount of damage it has sustained.

**Left Keys (Player One Controls in *Select Move*)**

Wforward one cell
Xgo to last cell
Aturn left
Dturn right
Qclimb
Edive
Rreset to initial position
tabDone Move

Right Keys (Player Two Controls in *Select Move*)

8forward one cell (on keypad)
2go to last cell (on keypad)
4turn left (on keypad)
6turn right (on keypad)
page upclimb
page down .dive
5reset to initial position (on keypad)
enterDone Move

NOTE: The computer will not let you make an illegal move. If you do try an illegal move the message box will tell you that there is a problem.

- **Done**

Select Done when your move is set up. This will stop your move clock. Remember, if you do not pick *Done* before your move clock runs out, the computer will fly as much of your selection as you have made.

The Move

When both players have selected *Done*, or when move clock time has run out, the computer executes the moves chosen by each player.

The View windows at the top of each player's screen shows the players' views from the front of the airplanes. No other view is available.

As the move is executed, each player watches for an opportunity to shoot the other down. Player One fires using the <TAB> key. Player Two fires using the <ENTER> key.

The computer will evaluate the damage sustained by each, and prepare for the next move..

The VCR

The VCR is available only in the following game modes:

- One Player Campaigns
- Two Player Campaigns

Once the VCR has been turned on, as described in "Computer Options" above, it is always recording the action.

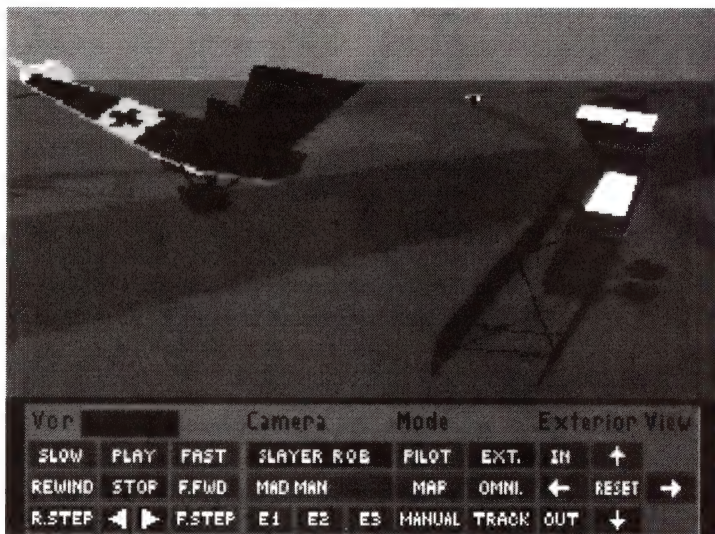
Press <v> at any time to enter the VCR mode and replay a sequence you have just flown.

Press <ESC> to return to the live action of your campaign at any time.



NOTE: If you are using a mouse to play the game, you can click the mouse on any of the buttons in the VCR panel to activate the controls.

When you press <v>, the following panel appears:



The bottom of the VCR Panel is divided into four sections, each of which is activated by a different "F-key".

NOTE: To operate any of the controls on the VCR panel, you must first press the correct F-key and activate that section's controls.



VCR <F1>

When you press <F1>, the nine **VCR** controls on the left of the panel become active and operate just like they do on a simple home VCR. The nine buttons correspond to the following keys **on the keypad**

- 7Slow
- 4Rewind
- 1R Step (Reverse Step moves the replay
backwards one frame at a time)
- 8Play
- 5Stop
- 2Direction of replay
- 9Fast
- 6FFwd (Fast Forward)
- 3F Step (Forward Step moves the replay
forward one frame at a time)

Two things are unusual about the VCR.

- First, the direction indicator <2> lets you replay the action both forward and backward.
- Second, the length of the tape depends on the amount of memory your computer has available when you turned the VCR on. The counter above the VCR controls will stop automatically when the tape (the memory) runs out.

Camera <F2>

Press <f2> and select your camera's point of reference for viewing the replay.



The two large bars at the top and center of the **Camera** section correspond to Player One and Player Two. The three smaller buttons at the bottom labeled E1, E2, and E3 correspond to the enemy's planes.

Use the following keys on the keypad to select the Camera point of reference:

- 8 Player One
- 5 Player Two
- 1 E1 (enemy plane 1)
- 2 E2 (enemy plane 2)
- 3 E3 (enemy plane 3)

When you choose one of these five planes as the camera's point of reference, that plane becomes either the center of the action being viewed, or the plane doing the viewing, depending on the **mode** you select in the next section.

Mode <F3>

The **Mode** section of the VCR's panel is activated by pressing <F3>. By using six different keys on the keypad to select the Mode buttons, you determine the location of the camera with respect to the point of reference set in the Camera section, as follows:

- **Pilot <7>:** Here, the camera is being operated by the pilot of the plane you selected in the Camera section.

When you Press <7> on the keypad in the mode section, a panel labeled "Pilot's View" appears to the right, allowing you to aim the camera in six different directions from the pilot's vantage point. **Note that to use these keys after selecting Pilot, you first must press**



Blue Max

<F4>. The Pilot View keys are as follows:

7Up
8Forward
4Left
6Right
1Down
2Back

- **Ext <8>:** Here the camera is outside of the plane you selected in the Camera section.

The external camera starts directly behind the plane, and once again you can press <F4> to activate the "External View" buttons to the right. The keys give you complete freedom to move the camera around your chosen plane, with closeups and wide angle views as well. Note, however, that it will *always* point toward the plane selected in the Camera section.

7In (closeup)
8Rotate Forward
4Rotate Left
6Rotate Right
1Out (back away)
2Rotate Backward

- **Map <4>:** This mode puts the camera up in the sky looking straight down at the entire world of Blue Max.
- **Omni <5>:** The **Omni** mode also places the camera up in the sky but not as high as in the Map mode. The plane in the center is the one selected in the Camera section.



- **Manual <1>:** The **Manual** mode gives you control of the camera, free from being tied to any particular plane as a point of reference.

After pressing <1> to select the Manual mode, press <F4> and use the Manual controls to the right to move the camera around in Blue Max's world, pointing it any direction.

- 7 In (closeup)
- 8 Rotate Backward
- 4 Rotate Left
- 6 Rotate Right
- 1 Out (back away)
- 2 Rotate Forward

- **Track <2>:** Press <2> to place the camera in one plane, making it follow or "track" another plane.

The camera is automatically placed in the plane selected in the **Camera** section. When you select **Track** mode, a section appears to the right called "Tracking." Activate the "Tracking" section by pressing <F4> and use one of the following keys to select the plane you want to track:

- 8 Player One
- 5 Player Two
- 1 E1 (enemy plane 1)
- 2 E2 (enemy plane 2)
- 3 E3 (enemy plane 3)



The Pilots

Edward Mannock

Edward Mannock was born the son of a soldier in Aldershot, England, May 29th, 1887. Prior to his going abroad he served in the R.A.M.C. When war broke out Mannock was in Turkey working for a British telephone company in Constantinople, since January 1914. When Turkey sided with Germany he was interned but, was released because of what is said to be ill-health and poor eyesight. When he returned to England he rejoined the R.A.M.C. unit to which he had belonged prior to his departure.



*Mannock, the Supreme
British Ace of Aces*


In April of 1916 he was commissioned with the Royal Engineers. Mannock's hatred for the enemy was no secret and his taste for action was great. He applied for a transfer to the Royal Flying Corps. Somehow, despite reputed stories of lacking physical qualifications, he had passed his medical examinations and was accepted into the pack. This was already well into the war.




He learned to fly at Hendon and was certified on November 28th, 1916. After several more training stints, he was posted to France to serve with the No. 40 Squadron. The day was April 1st, the April 1st of "Bloody April"

The British saw more losses here than any other month of the war. Mannock joined the fray for the first time on April 7th. One month after he nailed a two-seater. By July 12th he had two more notches on his log. He was promoted to Major and was given command of the 85th Squadron.

While on leave Mannock spent some time with fellow ace McCudden, and McCudden's death left him depressed and angry. What is amazing is how in such short time someone could fight with such ferocity. He was the highest scoring British Ace.

Little is known about Mannock's death. No one took credit for it. It's presumed he was struck by a random shot from the ground. It's unknown the hero's final victory score. Though the official record gives a tally of seventy- three, only Mannock knows how many victories he had credited to others. His fame and courage appears as an afterthought in the annals of WWI. His Victoria Cross was not awarded until July 18th, 1919. 

<div>73</div> <div>VICTORIES</div>	<div>Edward Mannock</div>
AWARDS: Vict. Cross, Dist. Serv. Ord. & 2 Bars, Mil. Cross	
RANK: Major	<div>FRANCE</div>
Squadron(s) 40, 74, 85	
PLANE(S): Nieuport Scout, SE5a	
Killed in Action, July 26, 1918	

William Avery Bishop

William Avery Bishop was a native of Owen Sound, Ontario. He joined the 7th Battalion, Canadian



*Bishop Gets a Grip on his Lewis
Inside a Nieuport*

Mounted Rifles at Toronto soon after war broke out. In June 1915 he was given a mission and was sent to England with his regiment. Bishop's love for adventure prompted him to apply for a transfer to the Royal Flying Corps in July .

After several months training he became an observer. He went to France in the autumn of that year and flew with

No. 21 squadron until the beginning of May 1916.


He was unlucky at all times except under enemy fire. He was in a car crashes and airplane crack-ups. He once was hospitalized for frostbite and once a steel cable struck him in the head as he stood in the hangar and nearly fractured his skull.



After his discharge from the hospital, Bishop trained as a pilot and was posted to No. 60 Squadron, then equipped with Nieuport Scouts, in March 1917. His



first air combat was fought on March 25th, when he shot down his adversary, an Albatros single seater. On that occasion Bishop was flying Nieuport scout A30B. In the spring of 1917 his victory score skyrocketed. He often spent seven to eight hours a day in the air.

On August 8th, 1918 he transferred back to Canadian H.Q. to assist the air force forming there.

After the war he went into business with Lt. Colonel W.G. Barker, running one of the earliest commercial aviation companies in Canada. Bishop served again in World War II as an Air Marshal. He died peacefully in his sleep on September 11th, 1956. 

72  VICTORIES	William A. Bishop
AWARDS: Vict. Cross, Dist. Serv. Ord. & Bar, Mil. Cross	
RANK: Lieutenant-Colonel	
Squadron(s) 21, 60, 85	
PLANE(S): Nieuport 17, Spwth T-Plane	
War Survivor	
Canadian/ Britain 	

Raymond Collishaw

There is no doubt Collishaw was one of the well known greats. Born in Nanaimo, British Columbia on November 22nd, 1893, Collishaw went to sea a teenager and served as second mate on steamer between Victoria and Alaska. In 1911 he sailed with Scott to the Antarctic. His taste for adventure would eventually lead him back to



*Collishaw Sporting
the Latest
in Pilot Fashion*

the motherland.

In January 1916, Collishaw transferred to the Royal Naval Air Service from the Department of the Naval Service of Canada. On August 2nd, 1916, he joined No. 3 Wing, R.N.A.S., the first strategic bombing force ever formed. Collishaw began his operational flying with No. 3 Wing, the so-called 'Sopwith Sailors'. His first victory was scored on October 12th, 1916, in the course of the wing's attack on the Mauser factory at Oberndorf. He shot the wings off an enemy scout that attacked the French and British formation. The type of aircraft that Collishaw was flying is unknown.

On October 25th he shot down two more enemy single-seaters near Luneville while ferrying a new aircraft from Luxeuil. Collishaw was himself shot down on December 27th, 1916 but was unhurt. On February 1st, 1917, he was transferred to No. 3 (Naval) Squadron but only for two months and claimed only one victim, an Albatros D III on March 4th. He went to No. 10 (Naval) Squadron on April 1st and took over the command of 'B' Flight.



Furnes on Fladers now became the home to the famous 'Black Flight', composed wholly of Canadians and one of the most successful fighting units of the war. Flight Sub-Lieutenants E. V. Reid, J.E. Sharman, J. E. Nash and W. M. Alexander were the other members of the



group. Their the Sopwith Triplanes were named 'Black Maria' (Collishaw), 'Black Death' (Sharman), 'Black Prince' (Alexander), 'Black Roger' (Reid) and 'Black Sheep' (Nash). Between May and July 1917 Black Flight destroyed a total of eighty-seven enemy aircraft. Collishaw claimed sixteen in twenty-seven days during June. By the 5th of that month he brought his personal score to thirteen with the destruction of an Albatros two-seater, and on the 6th he shot down three Albatros D IIIs during one combat. For this action he was presented the D.S.C., which was awarded on July 20th, 1917. On June 15th Collishaw shot down three Halberstadt single-seaters and an L.V.G. two-seater.

By July 2nd Collishaw's victory log totalled twenty-seven and on the following day he was awarded the D.S.O. Ten more enemy single-seaters went down to his guns during July. On July 15th he was forced down when a bullet took out his controls. His plane crashed on an even keel in the British front line; it was wrecked but he escaped unhurt. On July 28th Collishaw was sent home to Canada on two months' leave.

When he returned to France he was given command


60  VICTORIES	RAYMOND COLLISHAW
AWARDS: D.S.O. & BAR; D.S.C.; D.F.C.; CROIX DE GUERRE	
RANK: LIEUTENANT	
SQUADRON(S) 10,13,203	
PLANE(S): SOPWITH CAMEL, TRI-PLANE	
WAR SURVIVOR	
CANADIAN /BRITAIN 	



Blue Max

of No.13 (Naval) Squadron, a Camel unit previously known as the Seaplane Defence Flight. Collishaw continued his shooting spree for months. At the end of January his score was at forty victories. He was placed in command of the No. 3 Naval Squadron, another Camel unit.

Administrative duties kept Collishaw out of the fighting until June when he took back to the sky. He kept shooting until his score reached sixty in September. He was awarded a Bar to his D.S.O. on August 3rd, and also his D.F.C. was awarded on that date. On October 1st, 1918, he was promoted to Lieutenant-Colonel. At the time he was only twenty-five years old.

Collishaw joined other Canadians to help with the formation of the Canadian Air Force. After the Armistice, Collishaw went to Russia in command of No. 47 Squadron, R.A.F., and flew and fought there from July 1919 until the next spring. There were two more recorded downings to top out his final tally at 62. 

Albert Ball

On August 14th, 1896, Albert Ball was born in Nottingham, England. He was an avid tinkerer and had many hobbies. He, like Robin Hood of Nottingham was known to be a good shot.

Upon the War's outbreak he joined the 27th Battalion of the Sherwood Foresters and was promoted to Second Lieutenant in October 1914. He learned to fly at camp at





Ealing Common. He took lessons at his own expense and flew an old Caudon. He was posted to the R.F.C. on January 29th, 1916, and joined No. 13 Squadron in France on February 18th, 1916. His squadron flew B.E.2s.



*Capt. Albert Ball of
Nottingham*

Ball's normal duties consisted of reconnaissance and artillery-spotting flights, but occasionally he went over the lines seeking enemy aircraft in a B.E.2C, which was a scout, not a fighter. The first single-seat fighter flown by Ball was a Bristol Scout of No. 13 Squadron, but on May 7th, 1916, he was transferred to No. 11 squadron and received a Nieuport which enjoyed flying.

He soon became well known as a skilled fighter. Ball's first victory occurred on May 22nd, 1916, when he shot down an Albatros D I near Mayeneville. He did not see the machine crash, but late in the same patrol he attacked an L.V.G. two-seater and forced it to land.

On June 1st he flew over Douai airfield, attacked and damaged an Albatros and a Fokker that accompanied a balloon.

That balloon was at that time Ball's only confirmed victory, his first positive success over an enemy airplane did not come until July, 1916 when he shot




Blue Max

down a Roland C II right into the Mercatel-Arras road.

Although he was skilled, the constant fighting prompted Ball to ask for leave. Afterward he was transferred to No. 8 two-seater squadron and got back into B.E.'s, once more. During his short stay he continued his aggressive flying. On August 6, 1916 he attacked an observation balloon but allowed the observer to take to his parachute first.

On August 10, he was posted back to No. 11 Squadron at the rank of Lieutenant and was back in the cockpit of a Nieuport. On the 16th he attacked five enemy aircraft single handed and shot down three of them. Five days later he attacked seven Roland C IIs, shot one down, escaped the fire of the other machines then attacked another five Rolands and shot down two of those.

When the home-based fighting Squadrons were formed, Ball joined the No. 60 Squadron. There he was given a roving commission. More planes fell to his attacks, many of which he delivered from a position close under the belly of his adversary with his Lewis gun pulled back to fire nearly vertically. He would attack defensive formations like a lion, choose a victim and fire. Afterward he

44 VICTORIES	Albert Ball
AWARDS: Dist. Serv. Ord. & 2 Bars, Mil. Cross, Rssn. Ord. of St. George	
RANK: Captain	British
Squadron(s) 10, 74	
PLANE(S): Nieuport 17, SE5a	
War Survivor	



would make an immediate escape. His D.S.O. and Bar were awarded simultaneously on September 26th, 1916.

Ball destroyed two Roland C IIS on September 15th, forced down an Albatros two-seater on the 19th, destroyed two Rolands on the 21st and forced another to land. An Albatros fell to his gun on the 23rd, another on the 28th, when he also forced two more to land. For these actions, he was awarded a second Bar to his D.S.O.

Ball left France for England on October 4th for a term of instructional duties. He hated this function and in April was returned to France and resumed his fighting prowess.

On Monday, May 7, 1917 Ball led his "anti-Richthofen" Squadron to the skies. On patrol they were ambushed and Ball's plane vanished into the clouds for the last time. ●

Captain Edward V. Rickenbacker

"Eddie" Rickenbacker was born at Columbus, Ohio, on October 8th 1890. He left school at the age of twelve when his father died. He found a job at with a glass company by giving his age as fourteen. In 1917 he traveled to Europe and also to Washington, where he met General Pershing and accepted the Generals offer to enlist and return with him to France. Before doing so he changed his name to Rickenbacker (from Reichenbacher) because



Blue Max

of the problems with Germanic sounding names. He still encountered problems such as harassment by Scotland Yard. He was accused of being a spy and later was released when he proved his identity.

He served as General Pershing's chauffeur for several

months and in August he had the chance to transfer to the Aviation Section. He received his flying training at the 2nd Aviation Instruction Center, Tours. When the Army realized what kind of man they had, they utilized his talents by sending him to the 3rd A.I.C. as Chief Engineering Officer .



*Then Lieutenant Rickenbacker
with comrades Campbell
and Lufbery*

There, he helped diagnose the many engineering problems with the aircraft to be delivered. On his own time he received further flight instruction and convinced his commander to

allow him to participate in an aerial gunnery course at Cazeau. There he took to flying quite rapidly (even though he ripped up his undercarriage on his 1st solo flight.)

On March 4th, 1918 Lieutenant Rickenbacker reported to the newly formed 94th Aero squadron at Villeneuve-les-Vertus. Soon the 94th received their aircraft and on March 18, Rickenbacker, in company with





Major Lufbery and Lieutenant Douglas Campbell, made the first patrol over enemy lines ever made by an American air unit. His first victory was won on April 29th.

By May 30th he had brought down his fifth plane qualifying him for Ace status. During the month of June he began to suffer increasingly from an ear infection. He was ordered to a hospital in Paris where he spent two months recovering from a mastoid operation. Prior to being hospitalized, he had been appointed a flight commander.

During the last two weeks of September he scored over six more enemy aircraft and during October brought down fourteen more for a total of twenty-six. On September 25, he was appointed Commander of the 94th Squadron, a position that he held until the end of the war. Afterwards he returned to America and was hailed as a national hero.

Once home, he was made many offers from motion picture and advertising companies, but he turned them all down to enter an aerial mapping business on the West Coast.

Rickenbacker had two loves, planes and automobiles, and in 1921 , after securing the necessary backing and manufacturing facilities, he organized the Rickenbacker

26  VICTORIES	Edward Rickenbacker
AWARDS: Cong. Med. Honor; D.S.; L.d'.H.; CROIX DE GUERRE	
RANK: Captain	United States 
SQUADRON(S) 94th Aero	
PLANE(S): SVIII Spad	
WAR SURVIVOR	



Blue Max

Motor Company. There he had the 'Rickenbacker' produced, it had incorporated several innovations, which were later to become standard. It featured on its radiator the Hat in the King insignia of the 94th Aero Squadron. Unfortunately, the company was not adequately financed, and the venture collapsed. In November 1927 he obtained a controlling interest in the Indianapolis Motor Speed Co. which operates the speedway where, once a year the 500-mile auto-race is run. Rickenbacker was President of this company from 1927 until 1945 when he disposed of his interests. Early in 1928 he joined the Cadillac Motor Car Co.

In 1935 he joined Eastern Airlines and was appointed General Manager. ●

Alexander Alexandrovich Kazakov

Kazakov was a mild-mannered man of six feet. He carried with him the Icon of St. Nicholas and attended the funerals, when possible, of enemy pilots that he shot down. He also carried a strange device reeled up under his plane. It was an anchor like grappling iron. At the beginning of the war he, like the other pilots had no mounted gun. The iron was just another strange idea to get the enemy out of the sky.

On March 18, 1915 a report was sent out of an Albatros two-seater that was spotting for German artillery. Kazakov went to seek out the plane. He had found him and attempted to try his hook. The observer



began firing his rifle at Kazakov.

The two planes may have actually touched for they were both damaged in the process, but only Kazakov made it back to the land of the living. He crash-landed his plane behind Russian lines.

Kazakov was in command of the No. 1 Fighter Group in Russia. The men under his command painted skull-and-crossbones on the tails of their planes causing them to be called "Death or Glory" Squadron.

In August of 1916 he attacked an enemy plane over the German lines in Russia. During the attack he shot and killed the pilot.

The observer climbed up to the front of the mindless aircraft, and seized the controls. He used his empirical knowledge of flight to land the plane, ironically, on Kazakov's airfield.

The October revolution saw the end of Kazakov's unit. At that time he had more than ten kills. Kazakov and thirty other Russian pilots were sent to join the British forces in Bakeritza. His command of his squadron was distinguished and he continued to serve with the British forces after the armistice.




*Kazakov- Mild Mannered
Russian Ace.*




Blue Max

After the war the British withdrew from Northern Russia, and Communists had then taken over. This had depressed Kazakov and this fact was quite apparent to his men.

17 VICTORIES	Alexander Kazakov
AWARDS: Brit. Dist. Serv. Ord./Mil. Cross, French Leg. d' Honneur	
RANK: Staff- Captain	Russian 
SQUADRON(S) XIX Corp Air Slav.-Brit.#1	
PLANE(S): Morane/Sopwith Camel	
Died In Crash - 1919	

On August 3rd, he went into his hangar and ordered that his Sopwith Camel be prepared for flight. He taxied down the runway and immediately brought the plane into a steep climb. The machine obviously stalled at the top of the climb at which it turned back toward the ground.

Little altitude means little time for recovery. The plane hit nose first into the center of the airfield. Kazakov died in front of his men without saying a word. 

Manfred Freiherr von Richthofen 'The Red Baron'

Of all the WWI aces this one remains the most colorful. He was the eldest of three. Manfred was born in 1892, followed in 1894 by Lothar, who was also to become an ace. Another brother, Bolko, too young to serve during the war, was born in 1903.

Following the usual custom in Prussian aristocratic





families, the eldest son was sent to the military academy. In April, 1911 he joined a regiment of lancers. Then he became a lieutenant. Two years later, the peacetime regimental life took to the western front. He became a supply-officer with the infantry. He participated in equestrian sports, riding in steeplechases and winning some trophies.

On one of his first patrols there was an encounter with the enemy. It was then that he made repeated tries to transfer to the Air Service. In May 1915 he got his wish.



(From right to left) Richthofen, Kurt Wolff, and Anthony Fokker at Fokker Airplane Works.

First he was trained as an observer near Cologne, then posted to a unit on the Eastern Front, moving with it from Gorlice to Brest-Litovsk. Another move in August 1915 brought von Richthofen back to the Western Front. At Ostend he joined the clandestine Ostend Carrier Pigeon Unit, the security cover title for the formation of Germany's first bomber squadron organized by Major Siegert.

The planes were big and slow and Richthofen sought out his observation post. Back in a C-type aircraft he



Blue Max

succeeded in downing a Farman, but as it fell behind the French lines no confirmation was made. His first taste of blood made him hungry for more. On October 1st he met Oswald Boelcke.

Manfred asked him the secrets of his success to which Boelcke smile and replied; "Fly close to your adversary, aim carefully—and fire." Richthofen, however, knew that Boelcke had the advantage of a new, light Fokker mono-plane, while he had a much heavier twinseat aircraft. He was determined to become a pilot and, after some twenty or so training flights, he made his first solo flight. During the Battle of Verdun he still flew a C-Type machine, but this time as a pilot. He affixed a machine-gun to the top wing of his Albatros. With this configuration he downed a Nieuport but again, the plane fell behind French lines and confirmation could not be made. Richthofen was eventually posted back to the Russian Front on C-planes again. Oswald Boelcke was making a tour of the all air units on the Eastern Front. There, he selected the Lieutenant as a candidate to join him with Jagdstaffel 2, a new fighting formation that was set up to re-establish German air superiority on the Western Front. He proved himself to Boelcke rather quickly.

His first victory came on September 17th, 1916. Flying an Albatros DIIS recently received, Boelcke led Richthofen and three other novices into combat. Observing a flight of British FEs, Boelcke led his flyers in tight formation to break up the British defensive flight pattern.







Richthofen singled out a victim, fired much too early, then turning to regain a firing position, fired again, bringing the machine down. It fell near the airfield of a neighboring unit on which Manfred landed.

Making his way to the wreckage he found the observer already dead (the pilot died on his way to hospital.) All the pilots with Richthofen achieved victories that day and Boelcke, too, added another one to his score.

By November 9th he had eight victories and on November 23rd, the distinguished Major Lanoe Hawker fell to Richthofen's guns. At his sixteenth he was appointed to the command of Jasta 11 ; on January 16th, 1917 he was awarded the Pour le Mérite.

Jasta II had some of the finest fighter pilots in its fold including Manfred's brother, Lothar. With their top of the line fighting machines painted crimson they set out to the hunt. Leading Richthofen's own Jasta II was the young, daring Leutnant Wolff, a first-class pilot with already thirty 'kills'. The average age of these leaders in the Richthofen Geschwader was twenty-five, and of the pilots, twenty-one.

This group was respectfully given the name "Flying

80  VICTORIES	Manfred von Richtofen
AWARDS: Pour Le Merite	
RANK: Rittmeister	Germany 
UNIT(S): Jasta 11, J.G.1	
PLANE(S): Albatros DIII, Fokker Dr1	
Killed in Action-4/21/18	



Blue Max

Circus." On March 22, 1917 von Richthofen was promoted to *Oberleutenant* and a few weeks later *Rittmeister* the rank equivalent to Captain in Cavalry regiments.

New administrative work didn't keep him from the skies, and not soon afterward Richthofen was grazed by a Lewis bullet and was sent spinning downward. Regaining consciousness at 500 ft he managed to land his plane before collapsing beside it.

After his recovery he returned to his men with some inspiring news. The *Geschwader* was to be equipped with Fokker Dr 1's. This little plane was fast and furious. The enemy's planes too, were improving and many battles were ahead.

On September 15th, Kurt Wolff of Jasta 11 was shot down. Ace Werner Voss was shot down and killed on the 23rd. Heinrich Gonfermann of Jasta 11 fatally crashed when his Dr 1 developed wing stress failure. The planes were grounded and reinforced. At the end of 1917 Richthofen's score was at sixty-three.

On April, 21, 1918 Captain Arthur Royal Brown spotted a conflict between several Dr1s and RE8s. He led his Camel squadron toward the gunfire as the triplanes were disengaging. Brown's second lieutenant W. R. May circled above at 12,000 as ordered. As the triplanes regrouped for attack, May saw an opportunity to shoot an unwary Dr 1 and he dove at the chance. In his attempt at a kill both of his guns jammed so he immediately turned for cover.



Richthofen saw his chance for kill number eighty-one and he pursued the retreating craft. Brown saw the ensuing chase and this time he joined in. Richthofen was all over the fleeing May. Both were diving very low. Then Brown had a bead on the Red Fokker and he fired. Brown claims to have seen the plane as it was hit and as it looped round, Richthofen seemed to slump over. May was unaware of what had transpired and was ready to water his Camel in the Somme when he noticed his pursuer spin into the nearby ground. The Australian ground troops claimed the victory was theirs as well as Brown, for they had fired their Vickers at the plane as it passed over them.

When the plane was found, it was indeed confirmed: The Red Baron von Richthofen was dead. Shot through the chest he lay in a triplane already stripped by souvenir takers who also tore away the evidence that may have unshrouded the mystery of just how the greatest of all aces died.

On his grave was placed a wreath and a plaque that read simply;

‘To Our Gallant and Worthy Foe.’ ✚

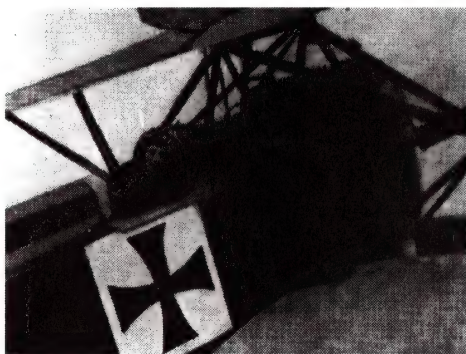
Godwin Brumowski

Brumowski was a member of the Imperial and Royal Army of Austria-Hungary. He was born in Wadowice, Galacia on July 26th, 1889 of Polish parents. In 1915 he decided to join the Lufifahrtruppen on the Eastern Front as an observer. His accuracy and



Blue Max

bravery earned him good standings. It is not known if he received formal flying training, but learned to fly by practicing during his flights as an observer. The commanding officers recognized his worth by giving him command of Fliegerkompagnie (Flik) 12, a typical flying unit of the time. These units were a mixture of observation and scout aircraft. Late in 1916 he visited the Western Front, where he studied the new German fighter organi-



Godwin Brumowski, Austrian Ace of Aces.

zation and tactics. On his return he applied the new ideas to his second command, Flik 41, equipped with Brandenburg DIs.



The D1, or 'Star-strutter', was a maneuverable little airplane with a fair turn of speed (105 m.p.h.). Unfortunately no effort was made to utilize the

available Fokker synchronizing gear. Instead, a Schwarzlose machine-gun, enclosed in a casing, was fixed on the top wing to fire over the prop. This was an inefficient method, because the gun increased drag, and it could not be reached by the pilot to clear stoppages. To reduce stoppages caused by condensation, Brumowski had the ammunition belt on his airplane disengaged from



its drum and spread in layers inside the casing. Brumowski devised a badge for his men, a white skull on a black background, that appeared on all their planes. Brumowski was determined to command an elite unit modelled on that of von Richthofen's 'Circus' on the Western Front. However, there was a shortage of scouts and two-seater aircraft had priority production. There was also a policy of using fighting scouts purely for protective purposes only.

In mid 1917 the Brandenburg DI's were replaced by the Albatros D III. This was done reluctantly, for Brumowski was partial to the DI, but soon he became a believer of the DIII. He fitted the twin guns over the instrument panel with their breeches conveniently situated inside the cockpit. The barrels extended beyond the front of the engine by means of extension tubes to prevent muzzle flashes from igniting gas-line fumes. Brumowski's flight of six was painted to imitate the Richthofen 'Circus' and carrying the skull badge. During the Caporetto break-through, the Austrian and German airmen achieved air superiority. Brumowski and his pilots flew in formation with up to eighteen air-planes. For a time they were to rule the skies. Allied reinforced Italian squadrons eventually hit back hard. When the German units withdrew in March 1918, only

40 	Godwin Brumowski
AWARDS: Ritt. des Militar, Maria Theresien Order	
RANK: Hauptman	Austrian 
UNIT(S): Flik 12, Flik 41	
PLANE(S): Brandenburg D1/ Albatros D3 War Survivor	

thirteen Austrian fighter squadrons were left to carry on the battle.

Brumowski had the same qualities of technical and organizing skill as Manfred von Richthofen, but his attempt to mass the fighter formations did not receive the amount of support that it deserved. His personal behavior was that of an gentleman.

His final victory score was the highest amongst the Imperial and Royal Forces.

Brumowski continued to serve in the Austrian Air Force after the war. Ironically in 1937 he was killed in an air crash at Shipol airport, in Holland while flying as a passenger. ✚

René Fonck

Truly an Ace of Aces, this man was the top scorer of all Allied pilots. He was born at Saulcy-sur-Meurthe in the Vosges. In March of 1894 he took a avid interest in aviation. He also was an excellent marksman. The combined interests was the perfect formula for a potential Ace.

In 1914 he was posted to Dijon and there he was among the airplanes and airmen that he had long admired. A month later, along with the rest of his intake he was transferred to the 11th Regiment of Engineers. The training there was the most dismal five months of his whole career. When the bridge-building on the Moselle, trench-digging, and the rest of the training was over he reported to Saint Cyr for aviation training. This constituted



eighteen days of lectures on aeronautical theory. On April 1st, he found himself at Le Crotoy, where he was to actually learn to fly.

Now qualified, he was posted to his 1st operational unit, Escadrille C.47, equipped with Caudron G IVs. Being at Corcieux in his native Vosges was the passion he needed to score the first of his victories. His first encounter with the enemy was uneventful. While returning from a reconnaissance over the Colmar region he met a German airplane on a similar mission, but being unarmed he could do nothing. He vowed that from then onwards he would always carry a rifle.



*René Fonck ranked # 1
in Allied sectors.*

Fonck was now carrying out many reconnaissance and bombing attacks, many at very low level and many at night, during which Fonck often had his machine damaged by fire from the ground. The old Caudron GIV were now fitted with forward firing machine guns. The plans were still technically not fighters. But Fonck pushed the plane to its potential. The squadron moved to Champane to continue its reconnaissance and bombing. On one of these flights, on September 25th, Fonck was carrying out



a reconnaissance over the advancing troops when a shot from the ground punctured his fuel tank. His fuel lasted long enough for him to ditch within the French lines.

In November the squadron moved to the Estrdes-Saint-Denis. Fonck was gaining notoriety as a gun spotter. On March 1st, 1916, flying with Adjudant Jaunaut, he attacked a Fokker which dived vertically to the ground, but it was too far behind the lines for this to be confirmed as a victory.

On August 6th, he was flying with Lieutenant Thieberge when two Fokkers dived on them. One of the Fokkers was severely damaged and dived away behind its own lines, the other fled. During the Somme offensive, on October

14th, 1916, he shot down an Aviatik on artillery spotting, but due to the battles which ensued on the front at that time, this kill went unconfirmed. Escadrille C.47 was moved to a new location near Fismes on March 17th, 1917. A few days later Fonck and another Caudron were at-

tacked by five Albatross DIII's but in spite of the odds Fonck turned and fought. His wing man, Sergeant Raux, was shot down. The pursuers followed the falling plane and failed to notice Fonck who himself had scored a shot. Raux

75 	RENE PAUL FONCK
AWARDS: Legion d' Honneur, Fr. & Belgn. Croix de Guerre, Brit. Mil. Medal, Crss. of Kargeorgevich	
RANK: Capitaine	FRANCE
Escadrille(s) C.47, Spa. 103	
PLANE(S): Spad XIII	
WAR SURVIVOR	





landed inside his own lines, his plane burned and with his gunner was killed. This second confirmed victory with C.47 brought Fonck's name before the French bureaucracy. On April 15, 1917 he was commissioned to Groupe de Chasse No. 12 - the Storks. Fonck was, as said prior, an excellent marksman. He fought as a deer hunter, using animal like skill. His minimal use of ammunition showed both his cool and cunning. Many times it took only four or five rounds to dispatch his kill, so accurate was his aim. In his own words; "I placed my bullets into the target as if I placed them there by hand." By late 1918 his total was now sixty-eight.

On September 11th, 1917 the Storks suffered a major loss with the alleged death of Georges Guynemer. Upon receiving the confirmation of his death, Fonck made for the German lines, spotted a two seater and shot it down. The plane catapulted through the air so wildly it almost hit Fonck's plane as it crashed to the ground.

His last kill, on November 1st, 1918 was a two-seater dropping propaganda leaflets, which he sent to the ground for littering! After the armistice Fonck continued to fly, and he became outstanding in the field of aerobatics and demonstration flying. For a time he flew a special Spad S.29 bearing the appropriate civil registration F-ONCK.

He died in Paris on June 18th, 1953. His many honors include the Croix de Guerre with no fewer than twenty-eight palms, the British Military Cross and Bar, the Belgian Croix de Guerre the British Military Medal and the Cross



of Karageorgevitch. ●

Ernst Udet

On November 17th, 1941 , Colonel-General Ernst Udet, *Generalluftzeugmeister*, Chief of the Technical Office of the Luftwaffe, ended his life by a pistol shot from his own hand. There ended the life of a man who had



*Second runner up as
Germany's Ace, Ernst Udet.*

remained a youth. His life and his playthings were airplanes. He had few enemies, but was an enemy to himself, for he lacked the moral courage to make his own decisions. As young Army volunteer Udet had been able, owing to an understanding father with the necessary money, to learn to fly before soldiering. He met during his training the young Lieutenant Justinus, who played an important part in influencing his flying career. With Justinus he reached his first field unit Fl. Abt.. 206. Flying an Albatros B II he experienced a near-crash due to a technical mal-

function that shook his nerve, but his observer, retrieved the situation. A week later both had the Iron cross, Justinus of the First Class and Udet of the Second.

Udet was a good pilot but he was also overconfident. He often pushed his plane to extremes. After having a



crash his authorities gave him orders not to take any unnecessary climbing turns. For his punishment he was sentenced to detention camp for seven days.

He was offered preparations for a bombing raid on Belfort. an officer rushed him to an L.V.G.BII and together they made for the skies. They had some problems with the bomb release but some results were achieved. Udet was transferred to a Fokker fighter unit. Udet now had a brand new Fokker monoplane which he promptly and skillfully crashed into the side of the hanger. This time, however, the fault was laid on the mechanical aspects of the plane.

On his first encounter with the enemy, a French Caudron, he (according to some historical account) took no action. This may cause one to think why such a man would wish to be a fighter pilot.

On March 1916, after he intercepted two more French planes, he couldn't muster the courage to attack. He noticed, however, several more planes, Caudron GIIIs.

The thought of his homeland being bombarded may have been too much. He attacked by singling out one Farman and he did, in fact, bring it down. Udet then went to Jasta 15. By April 15th he had five victories. Udet was now an ace. In June his commander took leave and issued control to Udet.

In early June, Udet met Guynemer in the air. Both circled one another trying to volley for a serve, but both pilots possessed equal flying skills, so a kind of stale stalemate ensued. Then Udet's gun jammed. Guynemer



Blue Max

had the better aircraft and a working gun. But when he observed Udet's inability to fire he turned away.

Udet was sent to command Jasta 37 in Flanders. By March 1918, he had twenty victories. Richthofen visited Jasta 37 and enrolled Udet into his Jagdgeschwader.

Udet was now in the cockpit of the new Dr1. On his first patrol with these bloodhounds he sighted and R.E.8 and left the formation. He shot down the plane and rejoined.

In April, Udet went into the hospital with ear trouble. By the time he returned to Jasta Richthofen was dead. The next day, he too was shot down but he managed to make it back to his own lines. His sixty-first and

62 VICTORIES	ERNST UDET
AWARDS: Pour Le Merite	
RANK: Oberleutnant	
UNIT(S): Jasta 13, 37, 11, 4	
PLANE(S): Albatros DIII, Fokker Dr1	
War Survivor	Germany 

second victories were against two American D.H.4s. Several days later Germany was vanquished.

He served his country over the years afterwards in certain aspects of aviation. He was a chief test pilot for the Luftwaffe and was scapegoated for several shortcomings they had.

On November 17th, 1941 Udet shot down his last pilot, for he tragically took his own life. ✚





Georges Guynemer

Georges Marie Ludovic Jules Guynemer was born in Paris on December 24, 1894, the son of a retired army officer who graduated from Saint Cyr Military Academy in 1880, but resigned his commission in 1890 to live in Compi gne and study the history of that town. As a youth Guynemer was fragile in health. He disliked his schooling and his scholastic achievements were lacking. His real aspirations were in the sky and he was determined to enter military flight training. In August 1914 he tried to enlist but he was rejected twice due to his ailing and frail-looking appearance. He hadn't given up, though and upon speaking to Captain Bernard Thierry at the local Military airfield he got his chance. He was recommended to a higher authority who O.K.'d his flight training.

His first flight was posted in his log book on March 10th, 1915. The flight book documented his career until 1916. To that point he had already shot down eleven enemy aircraft in the course of 349 flying hours.

In June of 1915 Guynemer was promoted to Corporal. He was posted to Escadrille MS3 stationed near Villers Cotterets. It was a mere month before he was documented for a score. Flying a Morane Parasol he pursued an Aviatik until his observer placed a shot.

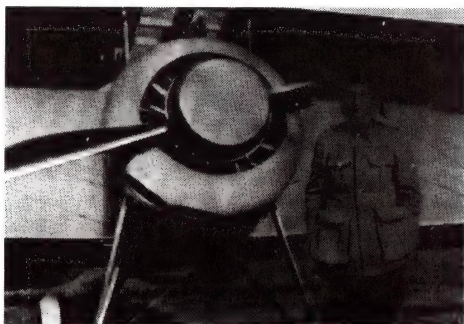
Two days later he received his first award on August 4th by General Dubois with this citation : 'A pilot of great spirit and daring, willing to carry out the most dangerous



Blue Max

assignments. After a relentless chase brought a German airplane to combat, a combat which ended in its crashing in flames.

In September 1915, Guynemer was shot down and was able to crash-land just inside no-man's land, where he was rescued by French troops who had seen his badly



*Guynemer, standing in front of
an earlier mishap.*

damaged airplane going down barely under control. This was the first of seven occasions on which he was shot down.


He was given a Nieuport single-seater with a forward firing machine gun. This combination quickly racked up points for the allied sector. On March 13th, 1916, he scored


his eighth victory, but two days later, flying over the battleground of Verdun, he was wounded. This didn't stop him long and by July was one of the best pilots of the new Nieuport Scouts. Guynemer's next victory was on June 22nd, 1916, high above the battlefields. A month later he had destroyed eleven enemy aircraft.

In July Guynemer was issued a new Spad VIII to fly. Although the machine hadn't the maneuverability of the



Nieuport, it made up for it with speed and rate of climb. On September 14th, 1916, his Group received a citation under the command of Captain Brocard to which wrote at the foot of it, 'To Lieutenant Guynemer, my oldest pilot and my most brilliant Stork.' On September 23, 1916, he shot down three Fokkers within five minutes time. Ironically, he himself was shot down by a French field-gun.

By August 20th he had reached an overall score of fifty-three. Guynemer was now in very poor health and was asked by the High Command to retire. He scored one more victory on September 6th, 1917. Then at 8:25 on the morning of September 11th, 1917, he took off on a patrol over Poelcapell. He and another pilot staged a conventional quarter rear attack on an enemy two-seater. Unseen by the pair was a group of Albatros DVs a few thousand feet overhead. They advantageously dove with their guns blazing. Bozon, the other pilot escaped without seeing the outcome. Guynemer never returned to the Storks. 

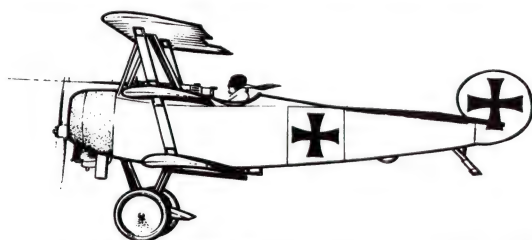
<p>54 VICTORIES</p>	<p>Georges Guynemer</p>
<p>AWARDS: Dist. Serv. Ord. & 2 Bars, Mil. Cross, Rssn. Ord. of St. George</p>	
<p>RANK: Capitaine</p>	<p>France</p>
<p>Escadrille(s) N. 3, SPA. 3</p>	
<p>PLANE(S): Nieuport 17, Spad SVII</p>	
<p>Killed in Action - 9/11/1917</p>	




The Planes

Fokker DR 1

Inspired by the Sopwith Triplane, the Germans set out



to build their own version of the machine. The DR 1 was

FOKKER Dr1 DREIDECKER	
	
Manufacturer: Fokker Flugzeug-Werke GmbH	
Powerplant: Thulin-built Le Rhône 9-cyl rotary, 110-hp or Oberursel UR II 9-cyl rotary, 110-hp	
Span: 23 ft 7 in (7.19 m)	
Length: 18 ft 11 in (5.77 m)	
Max Speed: 103.12 mph w/110hp	
Max Altitude: 20,013 ft (6100 m)	
Armament: Twin Spandau 7.92-mm	

such a plane with its mocking shape and performance. The "DR" stood for Dreidecker (Three winger.)

It's 110 HP Oberursel Rotary Engine gave it a top speed of 103 mph at 13,000 ft. The artillery was a twin synchronized Spandau. Production for the plane was hastened and this caused a fault in the wing stressing. It was withdrawn from service for 3 months and the problem corrected. Afterward it became a flying



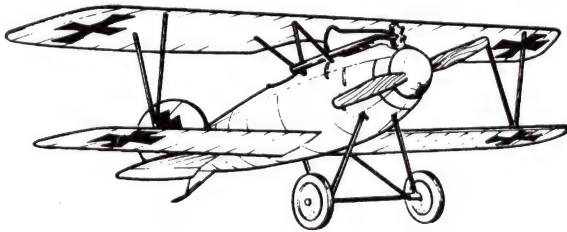
legend as pilots such as Richthofen took to the skies with it and made history. ✚

Albatros DIII

This plane was the first of the "V-Stutters" and its body was build entirely of plywood. It was considered to be an extremely durable machine.

The "D" series Albatros were the first twin gunners produced in the war, with over 400 actively in use, on the Western Front by the fall of 1917. The planes packed a Mercedes DIII engine

ALBATROS DIII	
	
Manufacturer:	Albatros Werke GmbH
Powerplant:	Mercedes DIIIa 6-cyl in-line, 160-hp
Span:	29 ft 8 3/4 inches (9.05 m)
Length:	24 ft (7.33 m)
Max Speed:	108 mph (165kmh)
Armament:	Twin Vickers .303 in



which ran at a powerful 160 HP.

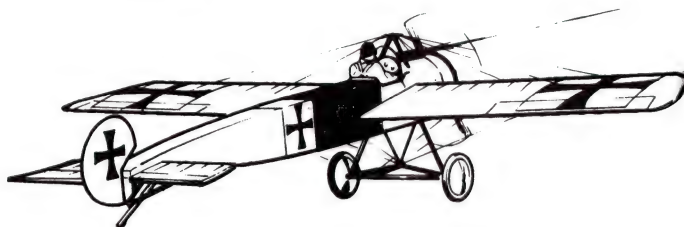
These improvements gave Germany back its air su-



Blue Max

premacy that had been lost to the Allies through their own developments. Thirty-five of Richthofen's victims were felled by a DIII.

When combined with the flying genius of such pilots, this airplane became the chief instrument in the "Bloody April" battles. ✚



FOKKER EIII



Manufacturer: Fokker Flugzeug-Werke GmbH

Powerplant: Oberursel U 19-cyl rotary, 100-hp

Span: 31 ft 2 in (9.52 m)

Length: 23 ft 7 in (7.2 m)

Max Speed: 87.5 mph (140 kmh)

Max Altitude: 11,500 ft (3505 m)

Armament: One Spandau 7.92-mm

Fokker EIII

The EIII was actually a redesign of the reconnaissance M5 aircraft. The M5 was a very basic monoplane with modest power and fairly weak structural tolerance; thus it was not intended for combat.

The improvements on the EIII included a sturdier




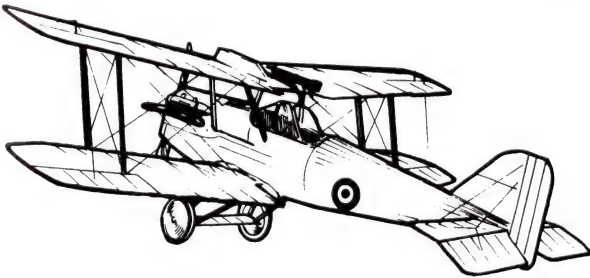
airframe, a longer wingspan and a more powerful engine.

The first German synchronization of gun and engine were applied to the EIII. It allowed the guns to be mounted on the engine cowling in front of the pilot, where the pilot could use the guns at any time. These improvements classified the plane as one of the first true fighter aircraft. ✚

Se5a

Designed by the Royal Aircraft Factory, this plane was noted for it's durability and reliability. Its only weak spot was in its synchronization gear, which could cause the planes propeller to be shot off by its pilot. These single-seaters had a powerful Hispano-Suiza or a Wolsely Viper the the pulled the plane to 19,500 ft @ 138 mph. Some of the greatest British aces such as Ball and Mannock flew this


SE5a	
	
Manufacturer:	Royal Aircraft Factory
Powerplant:	Wolsely Viper W.4a V-8, 200hp
Span:	26 ft 7 in (8.11 m)
Length:	20ft 11in (6.38 m)
Max Speed:	120 mph (193.1 kmh)
Max Altitude:	19,500 ft (5944 m)
Armament:	1 Vickers .303, 1 Lewis .303

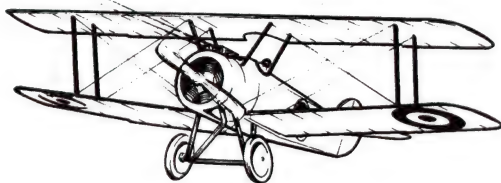




Blue Max

plane.(Mannock tallied 50 out of his 70 kills in a Se5a's cockpit.)

Like the Nieuport it had both a Lewis and a Vickers .303 in. gun mounted on her. Over 5000 Se5/5a's were built and prior to the armistice, 1000 planes were to be slated for the U.S. 



Sopwith Camel

Probably the best known plane of the war. It took its name from the "hump" over the engine cowling whereby its

twin Vickers were mounted. This was a notably sensitive plane and required a sensitive pilot. Its bulk was situated

toward the front of the craft. It was also short and this combination caused the plane to go into a spin if not flown with respect. Camels could carry four 250lb. bombs which caused many headaches in the trenches.

Almost 5,500 of the planes were built toward the end of the war the plane was used by the Belgians as well as the Americans and

British. It should be said that this plane claimed more

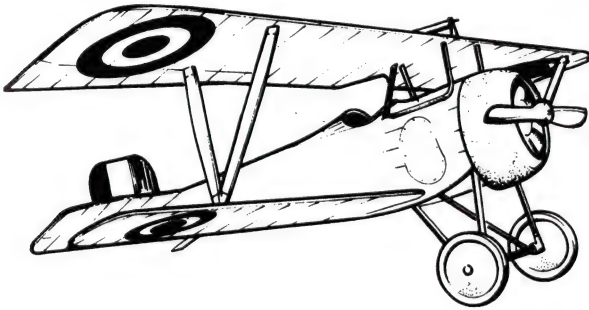
SOPWITH CAMEL	
	
Manufacturer: The Sopwith Aviation Co.	
Powerplant: 110/130 hp Clerget; 140/150 hp Gnome Monosoupape; 100 hp Bentley; 150 hp Le Rhone - 9cyl Rotaries	
Span: 28 ft (8.5 m)	
Length: 18 ft 9 in (5.68 m)	
Max Speed: 104.5 mph w/130hp	
Max Altitude: 19,000 ft (5791 m)	
Armament: Twin Vickers .303 in	



enemy victims than any other type, around 1,294 were killed and this, at the hands of British pilots alone. 🎯

Nieuport Nie 17


This plane was a favorite among allied aces. Nieuports



were in operation throughout most of the war and many enemy planes went down in flames due to its gun.

The plane was powered by a LeRhône 110 HP engine, but later models carried 130 HP Clerget engines.


The first RFC models had a Lewis gun mounted on the overwing and later models had a synchronized Vickers mounted on the engine cowling. Electrically

NIEUPORT Nie 17	
	
Manufacturer:	SA des Etablissements Nieuport
Powerplant:	Le Rhône 9J 9-cyl, 110-hp
Span:	26 ft 11 in (8.22 m)
Length:	18 ft 10 in (5.74 m)
Max Speed:	110 mph (177kmh)
Max Altitude:	17,388 ft (5300 m)
Armament:	1 Lewis .303, 1 Vickers .303 inch



Blue Max


fired rockets could be mounted to the V struts for easy removal of observation balloons.


These airplanes were widely used by France, Italy, Belgium and Russia. 

Fokker DIII

The primary Fokker bi-plane. It superceded the DII and was actually an upgraded version thereof. Although the plane wasn't used extensively during the war, pilots such as Boelke, Richthofen and Udet flew them and

scored many kills behind their Spandaus'. The plane was powered by a 14 cylinder twin rotary engine, an Oberursel with 160 HP that cheerfully took the plane up to 100mph. The plane packed either one or two synchronized 7.62 mm Spandau machine guns.

The DIII was phased out when the Dr1 and the new Albatros was introduced. 

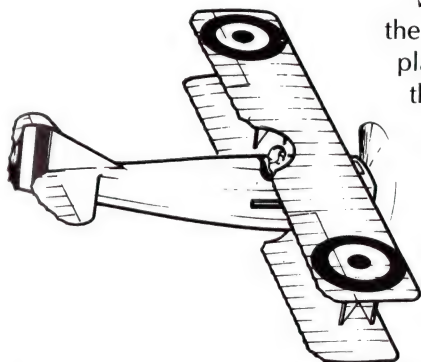
FOKKER DIII	
	
Manufacturer:	Fokker Flugzeug- Werke GmbH
Powerplant:	Oberursel UIII 14-cyl twin-row rotary, 160hp
Span:	29 ft 8 in (9.05 m)
Length:	20ft 8in (6.3 m)
Max Speed:	100 mph (160 kmh)
Max Altitude:	13,123 ft (4000 m)
Armament:	1 or 2 Spandau 7.92 mm

Fokker DR 1

Inspired by the Sopwith Triplane, the Germans set out



The Spad VII



Spads were some of the smallest and fastest planes of the war. Although it had its problems with agility, it made up for it with speed. When diving, it could leave a persuer in the clouds with little chance of

regaining a spot for a kill. It was very light and well built.

The Spad packed a Hispano-Suiza V-8 engine. Actually, there were several variations of it, but the high end versions kicked out over 220 H.P.

Some of the planes were built in Britian for France. In 1917 the U.S. ordered 189 Spad VII's for their pursuit squadrons and for trainers back home. ●

SPAD SVII



Manufacturer: Société Pour Aviation et ses Dérives

Powerplant: Hispano-Suiza 8Aa V-8, 150-hp

Span: 26 ft 5 in (8.08 m)

Length: 20ft 4.78, in (6.22 m)

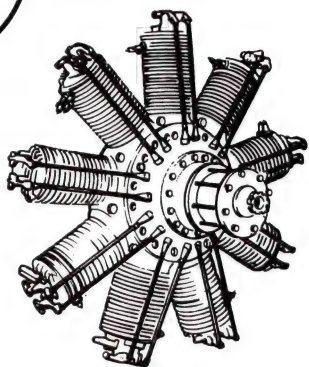
Max Speed: 134 mph (215kmh)

Max Altitude: 21,818 ft (6650 m)

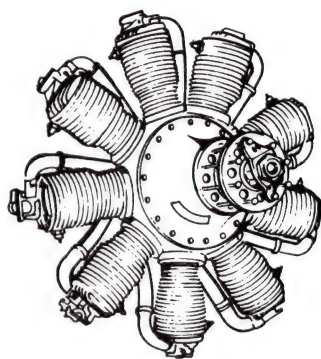
Armament: Two Vickers .303 in



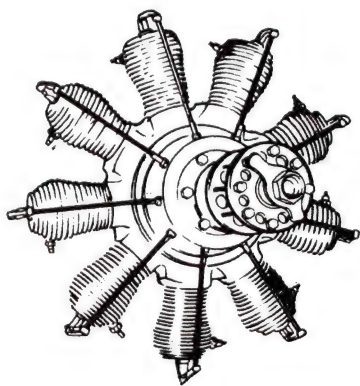
Blue Max



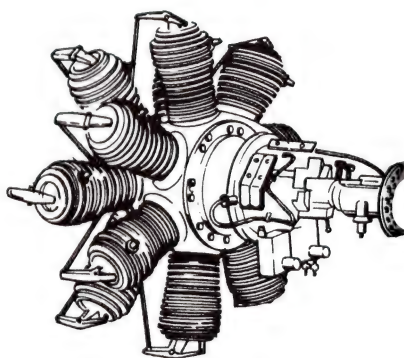
Clerget 9 Cyl.



Le Rhone 9 Cyl.



Gnome-
Monosoupape 9 cyl.



Oberursel 14 Cyl.



Highlights

Germany had been waiting for an excuse for war for several years. On June 28th, 1914 they finally found one, when Archduke Ferdinand, heir to the Austrian throne was assassinated in Sarajevo. Tied to alliances, nations fell into war one after another. On Tuesday, August 9th at 11 p.m. Britain declared war on Germany.

At the start of the war the German Air Service was composed of thirty-three *Feldfliegerabteilungen* (Field Flying Sections) of six airplanes each.

There were twenty-one *escadrilles* or French Squadrons, with six two-seaters each. A total of 120 airplanes were available to fight, and a total of 232 were ready for various duties.

The British had the Royal Flying Corps otherwise known as R.F.C. its units were called squadrons. Each had three groups of four planes. Also, the R.N.A.S. or Royal Naval Air Service had thirty-nine airplanes and fifty-two seaplanes. The North Sea Air Station had forty airplanes and only thirty-one seaplanes. These aircraft varied in size and shape but only the Vickers F.B.5 was a true fighter.

Upon the outbreak of the war there was no real established method of "dogfighting." Rules and tactics were invented as pilots flew along. Ideas and planes were shared among Allies and the enemy, though the latter was unintentional.

At first pilots prepared for battle as if their plans didn't include flight. Some pilots actually thought a sabre would come in handy. They would have been better off with a Swiss Army Knife.



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Five days after England declared war, a small British expeditionary force went to France followed by the Royal Flying Corps on August 16th.

From the start of the war the German Army had forced its way toward Paris with great speed. By September it was stopped at the Marne where it turned Northward toward the channel ports.

When the British learned of this they sent a Naval Division to Antwerp to thwart any attempts of German a takeover. The German army was much too strong for the small navy and the British were placed strictly on the defensive.

During this time the small Royal Naval Air Service (RNAS) were developing strategies for defense although the flying divisions of the Allied armed forces were mostly on the offensive. They crossed the lines and advanced well into enemy territory while observing the foe, dog-fighting and bombing hot zones.

The German Air Force spent most of their time behind their side of the front and simply waited for the allied planes.

The first German airplane brought down in combat with British aircraft was forced to land and burned up on the ground. This was August 25, 1914. Later the same day another was forced to land near Le Quesnoy and seized.

One of the first aerial combats involving a single seater scout was flown by Lt. Norman Spratt on August 28th. Spratt brought down a German two-seater with his Sopwith Tabloid without firing a shot. He probably would have

used a gun if he had one, since very few other methods of air to air combat had been proven to be effective. He did have something called flêchettes with him. They were small metal darts which gained speed rapidly when dropped from a plane and when poised over the enemy, that's just what he did.

As time marched on, war technology produced great change in the way pilots did business. The Allied pilots first had a taste of Fokker engineering in the middle of 1915. At first, the Fokker monoplanes were quite rare but the success of a synchronized gun soon brought many more to join in on the action.

When Roland Garros' Morane-Saulnier was shot down behind German lines it gave Anthony Fokker a chance to examine a fabled "deflector gear." The so-called gear allowed the gun to be mounted on the engine cowling and thusly was aimed by steering the plane toward the target.

Applying this method in the past would have whittled your propeller into match sticks unless, that is, you were flying a "pusher" type aircraft that employed a rear mount prop (these planes were notably sloppy in combat).

Upon examination, the gear turned out to be wedge shaped metal plates fused to the rear of the propeller blades. When hit, they acted as deflectors, for the bullet always struck an angled surface.

When this, however, was tried with the German steel jacketed ammunition, the plates did nothing but shatter the propeller and sent Fokkers' staff back to the drawing boards. Rather than come up with another prop shroud,



they designed an interrupt system which synchronized the gun with the engine such that projectiles would sail between the blades.

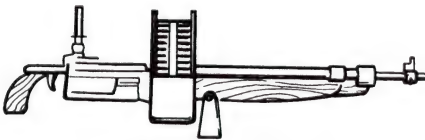
After issuing the creation to fighter squadrons in 1915, the Fokkers became invincible. Not until later in 1915 did the Allies develop a similar system. This period between became known as the "Fokker Scourge."

Weaponry

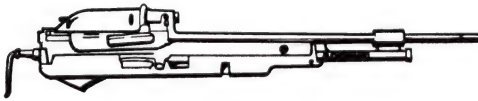
Early aircraft weapons were connected to planes by the pilot. That is, they used handguns and rifles. The record shows the first aircraft to have a machine gun (a Lewis) mounted to it was in 1912 by Captain C. D. Chandler. The first machine gun regularly used was the Hotchkiss. It was



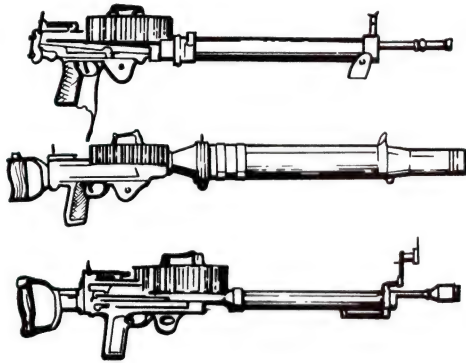
Hotchkiss (France)



Marlin (United States)



Browning (United States)



The Lewis & Variations (Great Britain)

a clip fed gun just slightly larger than a rifle. It was the weapon used by the French "pusher" type planes (rear propeller.) These guns were mounted directly to the plane on the front of the fuselage. This configuration enabled the first forward firing gun, although pushers were sometimes unstable aircraft, the weapon was a definite advantage.

The first air-to-air combat took place when a Hotchkiss, fired from a French Voisin, took out a German Aviatik.

The Lewis gun with it's several modifications and variations, including a water-cooled jacket, was the observer's gun used by the Allied sector. German observers used the Parabellum. Another popular gun was the LMG .08 or LMG .08/15. Its design originated at the Prussian State Arsenal at Spandau in Berlin. The Allies slapped the moniker "Spandau" on it, although the Germans never



referred to it as such.

The British Vickers company produced a gun that was appropriately named the Vickers gun.

The Colt and the Browning were American manufactured and also were used in the war. The Marlin may be a familiar sounding item, which was a modified version of the Colt.

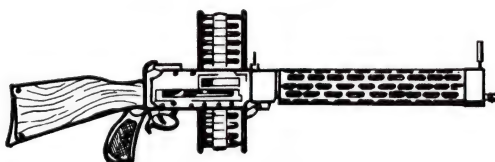
The distinctive Lewis drum was both easy to handle and protected the cartridges from oil and dirt when used on the



Vickers Mk II (Great Britain)



Spandau (Germany)



Parabellum (Germany)

ground. However, when used in the air it was cumbersome. The rushing air currents often ripped the cartridge from the pilots hand while he attempted to change it.

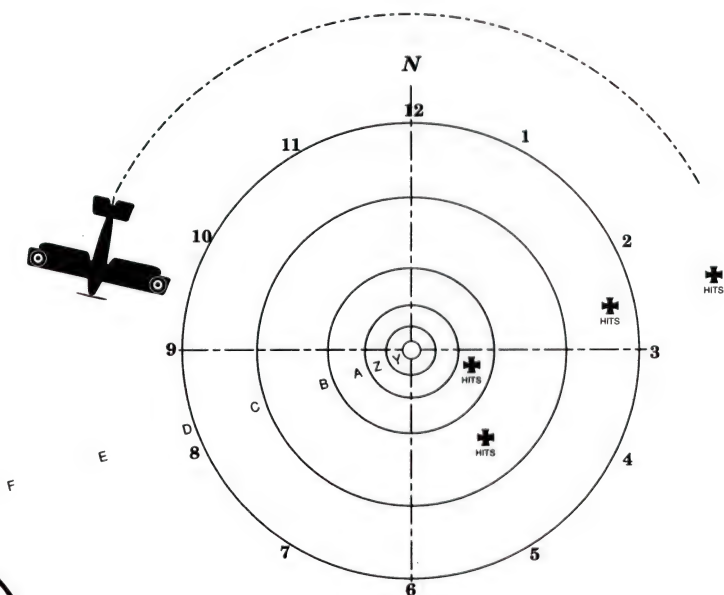
As with other aspects of modern warfare these guns



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went through various stages throughout the war. Spent casings had to be disposed of without fouling the plane or its pilot. Combustion dampers increased the firing rate on most guns and the development of a propeller synchronized gun produced many an Ace.

Methods for Achieving an effective means of artillery spotting by aircraft hadn't existed prior to the war. Radio communication between ground spotters and pilots were





vauged because no effective reference points could be established.

The method that became the standard for achieving this was called the clock code. It was based on both the compass and the dial of a clock. The target was considered the center of the clock face, with 12 o'clock being true north. Thusly 6 o'clock is south and 3 o'clock is east, etc. Imaginary concentric circles arranged around the target served as distance markers. They were given code names: Y, 2, A, B, C, D, E and F and they represented the distances of 10, 25, 50, 100, 300, 300, 400 and 500 yards, respectively. If a shot landed 100 yards WNW of a target it could be said as B-11 in morse code.

Insignias and markings on aircraft were not used before the war, for there was no reason to develop them. It did become apparent that these were essential to keep your airplane from being shot out of the sky by your own men. A German army Zeppelin, the Z.VIII, crashed in the forest of Badonviller in France on August 23rd, 1914, after it had been damaged by French ground fire and finished off by German ground fire. German troops mistakenly opened up on it as it drifted helplessly overhead.

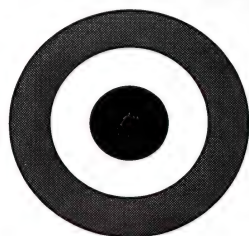
This scenario was not uncommon in the early days of the war. One account shows the British, frustrated by the repetitive advancing and retreating on the lines, firing madly at anything in the sky. The British attempted to resolve this problem by painting the "good old" Union Jack on the underside of their planes' wing. This solution was only successful at close range, being that the symbol



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resembled the German cross in unfavorable conditions, *such as war*. This fact was proven by two pilots of the R.F.C. 4th Squadron when their plane was shot down by friendly fire, ruining their day.

After realizing the need for a distinguishable logo, allied forces adopted a French-style round insignia with concentric circles. The french used



(reading from the center) blue, white and red as their insignia. So, the British used red, white and blue; the American forces used white, blue and red; the Belgians used black, yellow and red; the Italians used red, white and green while the Russians used rings of and red

seperated by thin rings of white around a white center.

Turkey used a color other than black for her insignia.

During 1914 Turkey's aircraft bore a red square with a white star and crescent. From the beginning of 1915 Turkey began using the standard black and white insignias of the German units. Germany, Austria-Hungary and Bulgaria used several variations of the black Iron

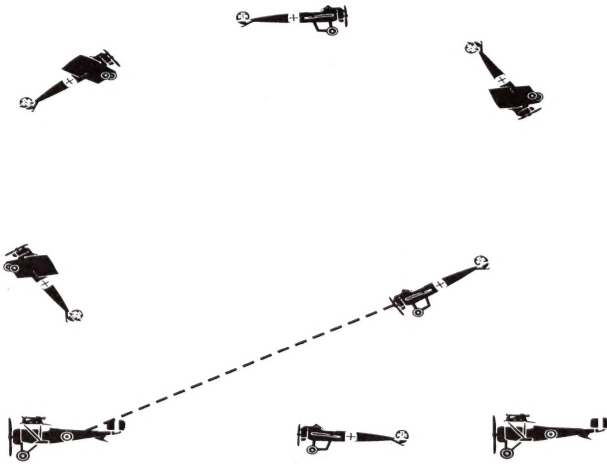


Cross. At the start of the war, any airplanes of the axis forces that had any kind of national marking had a hand-painted Iron Cross which often varied due to the lack of a standard template. A template was eventually devised and uniform crosses were applied.





"**B**loody April" was the name given to that respective month of 1917 by the British, who had suffered dearly at the hands of the Jasta groups. The spring was the traditional time for the beginning of new offensives and the continuation of old campaigns, the two-seaters of the R.F.C.



The Immelman turn was a definite advantage for those who knew how to execute it.

were once again involved in intensive observation, photography and artillery-spotting operations. When their B.E.2's and R.E..8's crossed the lines in large numbers,



Blue Max

they were shot down by the skilled German pilots with their new machines.

Manfred von Richthofen now was awarded the Pour le Merité. He was also appointed to lead Jasta 11. At this time he was commanding notoriety in his homeland. The press in France and Britain was also giving him much attention and he was quite aware of this fact. All this attention merely bolstered his ego and caused him to think of ways of gaining more glory.

His Jasta's planes were highly decorated and his pilots were hand picked. His own plane was painted bright red. This idea was taken from another famous German Ace, Oswald Boelcke. Boelcke flew all red and all black planes also.

Richthofen knew the value of these color schemes, for his men could spot him easily in battle and keep strategic tabs on or with him.

This format was spreading throughout the German fighter service, of which Richthofen's Jasta was a model. His battle plans were so successful that, in the spring of 1917, the Germans began to provide the front with air cover as opposed to only certain sectors.

All of the units were transported by rail, pilots, planes and equipment. These traveling units with their brightly colored equipment also gained much attention and the German forces were soon dubbed "flying circuses". That name lives, as we know, in history. ✚





The Pour le Mérite was the supreme German award for gallantry during the War. It was fondly called "The Blue Max" after Max Immelman a German ace. He was also one of the first to receive the medal.





Blue Max

Blue Max



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